DOCUMENT RESUME

ED 051 803 JC 710 177

AUTHOR Forgey, George W.
TITLE Some Selected Economic Benefits and Characteristics of Junior College Programs.
PUB DATE Apr 71
NOTE 60p.; Final report of a study conducted for the State of Illinois Advisory Council on Vocational Education, by Mid State Educational Consultants, Normal, Illinois

EDRS PRICE EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS Economic Progress, *Graduate Surveys, *Income, *Junior Colleges, Occupational Information, Performance Factors, *Success Factors, Vocational Development, Vocational Education, *Vocational Followup, Wages, Youth Employment
IDENTIFIERS *Illinois

ABSTRACT

This report is an addendum to a study whose purpose was to determine variables that contribute to the earning capacity of Illinois junior college graduates. Data were gathered from the Illinois Junior College Board and Bureau of the Budget, and from questionnaires sent to the 1968 graduates of three junior colleges in areas of high youth unemployment and of two junior colleges in areas of low youth unemployment. Researchers were able to account for 55.2 per cent of variables influencing earning capacity. The major variable categories were individual, college, family, and job. Based on the findings, the following conclusions were drawn: (1) uniform cost accounting procedures are needed to permit meaningful analysis of comparable data among colleges; (2) influence of the variable "hours worked per week while in college" on earnings indicates that occupation-oriented males may gain a great deal from work experiences that result in future earnings; (3) junior colleges should have on-going follow-up and evaluation programs in all occupational training areas; (4) the colleges should be sensitive to the needs of their constituents; (5) adequate vocational guidance programs should be developed to assist the student and his parents in making an occupational choice; and (6) scholarship programs should be re-evaluated on the basis of effectiveness in assisting individuals in their goal achievement. The questionnaire used in the study is included. (CA)

Mid State
Educational Consultants
RESEARCH • PLANNING • EVALUATION • STAFF DEVELOPMENT

A Study of:

SOME SELECTED ECONOMIC BENEFITS AND CHARACTERISTICS OF JUNIOR COLLEGE PROGRAMS

by George W. Forgey

Conducted for the State of Illinois
Advisory Council on Vocational Education
222 South College, Springfield, Illinois

A Final Report

Submitted by:

Dr. Charles R. Hicklin
Project Director

Mr. George W. Forgey
Principal Investigator

April, 1971

PREFACE

This report is filed with the Vocational Advisory Council to fulfill a contract signed by Mid State Consultants on February 18, 1971.

This is an addendum to a contract signed by Mid State Consultants on August 20, 1970. Since this is an addendum composed of a variety of questions and answers, the format of the report may appear to be somewhat of a patchwork design.

The material presented in this report grew out of a study, "Selected Economic Benefits of Illinois Junior College Programs." The main thrust of the primary study was to determine variables which contribute to the earning capacity of Illinois junior college graduates. The design of the study was such that the answers to the questions presented in this report were available with additional analysis. The answers are presented as a response to questions asked in the Advisory Council's prospectus for a research proposal in this area.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

The last decade has produced many attempts to reduce the hard-core unemployment problem in America. Vocational education has been viewed as one of the major avenues through which unemployment might be reduced, hence an increasing number of occupational programs has been established in community junior colleges.

The costs have been great as evidenced by the Vocational Education Act of 1963 which authorized increases in appropriations of 450 million dollars over the next four years to supplement the 47 million already provided annually for vocational programs by the Federal Government.[1] For the most part, each dollar of federal money is matched by the state, therefore, the amount listed is only half of the amount actually spent for vocational education. Illinois state apportionment for the operation of junior colleges has increased from 20 million in 1967-68 to 43 million for 1970-71.[2] Vocational education costs are extremely high since expensive equipment, small class size, large laboratory space and highly qualified instructors are

---

[1] "Two Legislative Landmarks in One Month," Junior College Journal, 34:4 (February, 1964).

[2] "Second Biennial Report," Illinois Junior College Board, (March, 1969) p.4.

prerequisites to adequacy of training. Also, the rapid evolution in technology renders existing programs partially obsolete in a relatively short period of time, making it necessary to re-equip laboratories and retrain instructors.

With increasing expenditures of funds, administrators, faculties and board members of all public institutions providing vocational programs must justify these programs on: (1) the basis of their contribution to provide competencies which will be marketable in the labor market, and (2) the basis that these competencies will provide the student the opportunity to advance in his chosen occupation. This expresses the intent of the Vocational Education Act of 1963[3] and its amendment in 1968.[4]

DEFINITIONS

The following are definitions of terms and abbreviations which will be used throughout this study:

1. ACT. American College Test.

2. Earnings. The wages received in 1968, 1969 and 1970 by graduates of junior college programs.

3. Junior College. Public educational institution offering two-year transfer and occupational curriculums as of or previous to the 1966-67 school year.

---

[3]Public Law 88-210, H.R. 4955, December 1963.

[4]Public Law 90-576, H.R. 18366, October 1968.

Definitions continued:

4. Occupational Program. Junior college curriculum which has as its purpose the preparation of students for gainful employment.

5. Transfer Program. Junior college curriculum which has as its purpose the preparation of students for further study at a four-year college or university.

6. Marketable Skill. An area of competency which is sought by employers and leads to gainful employment.

7. Job Satisfaction. Worker's self evaluation of his attitudinal perception of his work.

8. Areas of High and Low Youth Unemployment. Economic characteristics of communities as defined by the State Board of Vocational Education and Rehabilitation, Springfield, Illinois.[5]

9. Occupation for Which Prepared. Working position utilizing specific skills developed in a junior college training program developed for that purpose.

10. Related Occupation. Working position requiring skills that are a modification of skills developed in a specific junior college training program.

---

[5]Board of Vocational Education and Rehabilitation, Vocational and Technical Education Division, A State Plan for the Administration of Vocational-Technical Education in Illinois, Springfield: Division of Vocational Education, September, 1969, p. 110A.

Definitions continued:

11. Unrelated Occupation. Working position requiring skills that are different than those developed in a specific junior college training program.

12. Hours Worked Per Week While in College. Time spent as an employee.

METHODOLOGY

Research literature was surveyed with the purpose of identifying variables which affect school achievement and earnings. Search of the literature revealed little in the way of cost/benefit studies due to the difficulty in defining "benefit". The demands being placed on education today, relative to justifying programs, require quantifiable measurements of earnings received and funds invested which greatly restricts the impression most people have of "benefit". In general, socioeconomic class, high school grades and ACT composite scores are related to academic schievement. Occupational students generally have lower ACT scores that transfer students, but show less of a trend toward changing educational goals. Slightly more than one-fourth of the junior college students were employed while attending college.

The study included students from five junior colleges. The original plan included six junior colleges, however, one college declined stating that the information being sought was not available. The colleges studied included three junior colleges located in areas of high youth unemployment and two in areas of low youth unemployment equated on the basis of curriculum offerings.

The data gathering consisted of three phases. Phase one constituted a visit to each junior college in the study to secure the following information:

1. 1968 graduates' name.
2. 1968 graduates' addresses.
3. 1968 graduates' ACT composite scores.
4. 1968 graduates' majors.
5. Cost data for transfer and occupational programs.

Phase two was accomplished by securing information from the graduates using a personal questionnaire which was mailed to them for return in a pre-stamped self addressed envelope. Non responders were sent a reminder card three weeks later and a second reminder card was sent two weeks after the first or five weeks after the questionnaire was mailed.

Phase three included the gathering of junior college data from the Illinois Junior College Board and Bureau of the Budget.

The data was subjected to bivariate, multiple regression and stepwise regression analyses.

DELIMITATIONS

The following were delimitations of the study:

1. The junior colleges in the Chicago system were excluded from this study.

2. Only those junior colleges which offered transfer and occupational courses as of or previous to the 1966-67 school year were considered for the study.

3. Only those junior college graduates who received Associate of Arts, Associate of Science or Associate of Applied Science degrees were included in this study.

4. College expenditure per student was determined from the average expenditure per student in occupational and transfer programs for the school year 1968-69.

5. The gathering of cost data was complicated due to inconsistencies in interpreting uniform accounting procedures prescribed by the Illinois Junior College Board. This situation made it impossible to accurately determine costs of specific programs for analytical purposes.

RECOMMENDATIONS

1. Uniform cost accounting procedures are needed to permit meaningful analysis of comparable data among colleges. Cost accounting and record keeping procedures should be developed which will permit fast retrieval of data for evaluation and analysis.

2. The influence of the variable "hours worked per week while in college" in explaining earnings indicates that occupational oriented males may gain a great deal from work experiences which result in increased future earnings. The influence of this variable relative to occupational oriented females should be given further study. The possibility of providing work experience directly related to the student's occupational goals should be explored where none are presently available. Where work experience programs are presently a part of the program, emphasis should be placed on making them efficient in providing the skills demanded in the labor market.

3. Junior colleges should have an on-going follow-up and evaluation program in all occupational training areas. The rapid increase in technology demands constant evaluation to assure that the occupational programs are directly related to post-graduation employment.

4. Junior colleges should be sensitive to the needs of their constituents. New programs should be considered as community needs change. Similarly, programs once established should be modified as the societal needs change. This process of constant change in meeting the needs of the community and its citizenry should prompt the junior college to be aware of relevant adult education programs, short courses and workshops.

5. Vocational guidance programs should be developed to adequately assist the student and his parents in making pertinent occupational choices in view of individual differences and gainful employment opportunities.

6. Scholarship programs should be reevaluated on the basis of their effectiveness in assisting individuals in goal achievement.

7. Appropriate state agencies should take steps to make certain that data, such as that gathered in this study, are made available to future researchers.

RESPONSE TO THE QUESTIONNAIRE SENT TO JUNIOR COLLEGE GRADUATES ARE SUMMARIZED IN THE FOLLOWING TABLE.

TABLE 1

QUESTIONNAIRE RETURNS BY MAILINGS AND BY COLLEGE

Junior College	Number of Graduates	First Mailing	Percent	Second Mailing	Percent	Third Mailing	Percent	Total	Percent
A	126	70	55.55	2	1.58	6	4.76	78	61.90
B	319	150	47.70	43	13.47	17	5.32	210	65.80
C	133	44	33.00	29	21.80	17	12.78	90	67.66
D	128	83	64.80	17	13.28	6	4.68	106	82.81
E	221	126	57.01	5	2.26	2	.90	133	60.17
Total*	927	473	51.02	96	10.36	48	5.18	617	66.56

*Approximately 8 percent of the graduates could not be contacted because of insufficient addresses or because they were in the Armed Services.

TABLE 2

Students Selected for This Study

College	N	Percent of Total
A	76	13.52
B	210	37.37
C	80	14.23
D	76	13.52
E	120	21.35
Total	562	99.99

The number of usable questionnaires was reduced from 617 to 562 because of incomplete answers.

HOW MANY STUDENTS ARE ENROLLED IN OCCUPATIONAL CURRICULUMS?

The following tables give the number of FTE (full time equivalent) students enrolled in the various curriculums offered by the junior colleges in this study 1966-67, 1967-68, 1968-69 and 1969-70.

TABLE 3

F.T.E. Student Enrollment Fall 1966 (1)

College	Baccalaureate Oriented		General Education		Occupational Courses		Total F.T.E.
	N	%	N	%	N	%	
A	209.8	67.1	---	---	103.0	32.9	312.8
B	900.9	88.2	---	---	120.9	11.8	1021.8
C	485.6	89.4	---	---	57.5	10.6	543.1
D	685.1	83.3	21.8	2.7	115.1	14.0	822.0
E	580.2	63.5	156.5	17.1	176.7	19.3	913.4

TABLE 4

F.T.E. Student Enrollment Fall 1967 (1)

College	Baccalaureate Oriented		General Education		Non-Business Occupational		Business Occupational		Total F.T.E.
	N	%	N	%	N	%	N	%	
A	243.7	75.6	---	---	19.1	5.9	59.4	18.4	322.2
B	875.5	87.0	11.4	1.1	46.2	4.6	73.6	7.3	1006.7
C	377.1	77.0	23.4	4.8	74.0	15.1	15.3	3.1	489.8
D	620.8	72.7	59.6	7.0	93.9	10.9	79.5	9.3	853.8
E	779.7	82.0	44.7	4.7	73.6	7.7	52.8	5.6	950.8

TABLE 5

F.T.E. Student Enrollment Fall 1968 (1)

College	Baccalaureate Oriented		General Education		Non-Business Occupational		Business Occupational		Total F.T.E.
	N	%	N	%	N	%	N	%	
A	148.4	57.2	4.8	1.8	64.8	24.9	41.6	16.0	259.6
B	891.4	81.8	26.7	2.4	53.5	4.9	118.1	10.8	1089.7
C	317.7	72.0	15.6	3.5	90.9	20.6	16.9	3.8	441.1
D	566.1	62.6	124.8	13.8	152.5	16.9	60.3	6.7	903.7
E	693.6	72.0	32.3	3.4	102.1	10.6	134.8	14.0	962.8

TABLE 6

F.T.E. Student Enrollment Fall 1969 (1)

College	Baccalaureate Oriented		General Education		Non-Business Occupational		Business Occupational		Total F.T.E.
	N	%	N	%	N	%	N	%	
A	147.2	64.2	3.7	1.6	69.3	30.2	9.1	4.0	229.3
B	870.9	76.0	43.8	3.8	109.3	9.5	121.4	10.6	1145.4
C	241.1	60.9	22.5	5.7	91.7	23.2	40.3	10.2	395.6
D	706.2	69.2	43.0	4.2	157.4	15.4	114.1	11.1	1020.7
E	723.2	66.5	23.7	2.2	155.4	14.3	185.3	17.0	1087.6

1) This data for Tables 3, 4, 5 and 6 were taken from Anderson, Ernest F., and James S. Spencer, Report of Selected Data and Characteristics 1966-67, Springfield: Illinois Junior College Board. 1967. pp. 39-41.; Anderson, Ernest F., and James S. Spencer, Report of Selected Data and Characteristics 1967-68, Springfield: Illinois Junior College Board. 1968. pp. 23-26.; Anderson, Ernest F. and Carl E. Thornblad, Report of Selected Data and Characteristics 1968-69, Springfield: Illinois Junior College Board. 1969. pp. 29-33.; Martin, Albert H. and Carl E. Thornblad, Report of Selected Data and Characteristics 1969-70, Springfield: Illinois Junior College Board. 1970. Tables 29, 30, 31, 32, 33.)

WHAT PERCENTAGE OF VOCATIONAL AND TECHNICAL PROGRAM ENROLLEES CONTINUE INTO UNIVERSITIES AND COMPLETE A VOCATIONAL OR TECHNICAL PROGRAM? COMPLETE A PROGRAM OTHER THAN VOCATIONAL OR TECHNICAL?

Occupational Programs Completed
By 1968 Junior College Graduates

Program	N	Percent of Total Occupational Programs Completed
Agriculture - business	44	23.40
Agriculture - mechanics	35	18.62
Secretarial & Clerical	19	10.11
Nursing	18	9.57
Electronic technology	8	4.26
Business	8	3.19
Data Processing	6	3.19
Office Occupations	6	3.19
Other	44	23.40
Total	188	100.00

TABLE 8

4-Year Programs Pursued
By 1968 Junior College Graduates

Program	N	Percent of Total Transfer Programs Pursued
Education	78	19.85
Business	51	12.98
Agriculture	36	9.16
Industrial Technology	23	5.85
Science	21	5.34
Language	21	5.34
Accountancy	19	4.83
History	19	4.83
Math	18	4.58
Engineering	18	4.58
Economics	12	3.05
Art	8	2.04
Psychology	6	1.53
Home Economics	5	1.27
Geography	5	1.27
Physical Education	5	1.27
Other	48	12.21
Total	393	99.98

WHAT PERCENTAGE OF THE JUNIOR COLLEGE GRADUATES TRANSFERRED TO SENIOR INSTITUTIONS?

TABLE 9

1968 Junior College Graduates Transferred To:

4-Yr. College	N	Percent of Total
Southern Illinois U.	93	23.66
Illinois State U.	64	16.28
Northern Illinois U.	38	9.67
University of Ill.	38	9.67
Eastern Illinois U.	19	4.83
Western Illinois U.	16	4.07
Other	125	31.81
Total	393	99.99

A study of the 1968 junior college graduates of five selected colleges reveals that 80 percent of the graduates of transfer oriented curriculums actually transferred to senior institutions while 32 percent of the graduates of occupational oriented curriculums actually transferred to senior institutions.

1. IS THERE A SIGNIFICANT DIFFERENCE IN ACT COMPOSITE SCORES OF OCCUPATIONAL AND TRANSFER STUDENTS?
2. IS THERE A SIGNIFICANT DIFFERENCE IN SCHOLARSHIP ASSISTANCE RECEIVED BY OCCUPATIONAL AND TRANSFER STUDENTS?
3. IS THERE A SIGNIFICANT DIFFERENCE IN FINANCIAL ASSISTANCE FROM HOME RECEIVED BY OCCUPATIONAL OR TRANSFER STUDENTS?
4. IS THERE A SIGNIFICANT DIFFERENCE IN PARENT'S EDUCATIONAL LEVEL OF THOSE WHO RECEIVED AND THOSE WHO DID NOT RECEIVE FINANCIAL ASSISTANCE FROM HOME?
5. IS THERE A SIGNIFICANT DIFFERENCE IN ACT SCORES OF SINGLE AND MARRIED JUNIOR COLLEGE STUDENTS?

TABLE 10

Comparison of ACT Scores
of Recipients and Non Recipients
of Scholarship and Home Financial Assistance

Variable	N	Mean ACT	Std.	T-Value
Scholarships 1966-67:				
Students Receiving Scholarships	65	20.66	6.55	1.36
Students Not Receiving Scholarships	497	19.46	7.73	
Scholarships 1967-68:				
Students Receiving Scholarships	61	20.51	6.69	1.06
Students Not Receiving Scholarships	501	19.52	7.73	
Assistance From Home 1967-68:				
Students Receiving Assistance from Home	313	19.93	7.31	1.44
Students Not Receiving Assistance from Home	239	18.96	8.29	

TABLE 11

Comparison of Occupational and Transfer Students
on the Basis of Selected Individual and Family Variables

CHARACTERISTICS	OCCUPATIONAL N	OCCUPATIONAL Mean	OCCUPATIONAL Std.	TRANSFER N	TRANSFER Mean	TRANSFER Std.	T-Value
Sex: Male	142			226			
Female	44			150			
ACT Composite Score	186	18.32	7.198	376	20.03*	7.921	- 2.47*
Scholarship Assistance 1966-67 ($/semester)	20	150.00	206.00	45	131.00	93.80	.50
Scholarship Assistance 1967-68 ($/semester)	17	176.47	218.00	44	152.00	113.79	.55
Hours Employed Per Week While in College	110	13.25	12.38	217	14.70	13.97	- .91
ACT of those working	110	19.69	6.57	217	17.83	8.55	1.98*
ACT of those not working	76	15.78	7.61	159	21.24*	7.29	- 5.30*
Assistance From Home 1966-67 ($/semester)	96	295.83	314.88	223	256.95	289.94	1.07
Assistance From Home 1967-68 ($/semester)	94	293.67	311.41	219	252.05	270.86	.82

* Significant at .05 level.

TABLE 12

Comparison of Students
Receiving and Not Receiving Assistance from Home 1967-68
on the Basis of Their Parent's Educational Level

Variable	N	Mean	Std.	T-Value
Father's Educational Level				
Fathers educational level of those receiving assistance from home	313	11.35	3.98	2.10*
Fathers educational level of those not receiving assistance from home	239	10.83	2.82	
Mother's Educational Level				
Mothers educational level of those receiving assistance from home	313	11.56	2.55	1.22
Mothers educational level of th those not receiving assistance from home	239	11.31	2.32	

* Significant at .05 level.

TABLE 13

Comparison of ACT Scores
of Single and Married Junior College Students

Variable	N	Mean ACT	Std.	T-Value
Marital Status				
Single Students	477	20.06	7.19	4.30*
Married Students	84	16.18	9.64	

*Single student's ACT scores are higher than married student's scores, significant at .05 level.

WHAT ARE THE EARNINGS OF JUNIOR COLLEGE GRADUATES?

TABLE 14

Annual Earnings of Occupational and Transfer Majors -- 1968-70

Year	Occupational			Transfer			T-Value
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	
1968	118	$4883.05	$2475.45	70	$2942.85	$3204.13	4.70 *
1969	118	4786.44	3255.34	70	3970.00	3824.78	1.57
1970	118	5289.30	3391.05	70	5721.42	3588.95	- .84

Note:

(1) 1968 earnings projected from date of employment to end of year on the basis of hourly, weekly, monthly or yearly contractual wage.

(2) 1970 earnings projected from July 1, 1970 to end of year on the basis of January 1 - June 30, 1970 earnings.

* Significant at .05 level.

WHAT ARE THE EARNINGS OF JUNIOR COLLEGE GRADUATES IN DIFFERENT PARTS OF THE STATE, NORTHERN, CENTRAL, SOUTHERN? (1968, 1969, 1970)

TABLE 15

Comparison of 1968-70 Earnings by Location

Program	N	1968 Mean	Std.	T-Value	N	1969 Mean	Std.	T-Value	N	1970 Mean	Std.	T-Value
NORTHERN ILLINOIS												
Occupational	39	$4851	$2990	2.41*	39	$4876	$3702	1.07	39	$5436	$3706	- 1.65
Transfer	37	3092	3269		37	3970	3533		37	6708	2831	
CENTRAL ILLINOIS												
Occupational	35	4691	2389	3.51**	35	4617	3177	.91	35	5191	3643	.71
Transfer	10	1710	2012		10	3560	3034		10	4260	3227	
SOUTHERN ILLINOIS												
Occupational	40	4989	2043	2.21*	40	4437	2627	.43	40	5138	2714	.25
Transfer	17	3406	3142		17	4053	3678		40	4912	3751	
OUT-OF-STATE												
Occupational	4	5800	803	1.34	4	8875	1850	1.23	4	6250	3750	.53
Transfer	6	2767	3984		6	4417	6238		4	4367	5510	

* Significant at .05 level.

** Significant at .05 and .01 level.

HOW SATISFIED ARE JUNIOR COLLEGE GRADUATES, WITH THEIR WORK, WHO ENTERED THE FIELD OF WORK AFTER GRADUATION?

TABLE 16

Job Satisfaction Expressed by 1968 Junior College Graduates

Job Satisfaction	Entire Group		Occupational		Transfer	
	N	%	N	%	N	%
Very satisfied	48	24.87	43	34.67	5	7.24
Satisfied	75	38.86	58	46.77	17	24.63
Dissatisfied	27	13.98	17	13.70	10	14.49
Very dissatisfied	42	21.51	6	4.83	36	52.17
No response	1	.51	0	---	1	1.44

1968 JUNIOR COLLEGE GRADUATES IN MILITARY SERVICE 1968-70

TABLE 17

1968 Junior College Graduates in Military Service 1968-70 (1)

Program	Number in service during 1968-70	% of Total
Occupational	47	84.00
Transfer	9	16.00
Total	56	100.00

(1) Of the 47 occupational people in service, 9 had transferred to a senior institution, 37 had not transferred to a senior institution and 1 person did not respond to the question.

1. WHAT FOLLOW-UP STUDIES OF GRADUATES OF VOCATIONAL OR TECHNICAL PROGRAMS ARE USED TO DETERMINE PROGRAM AND/OR COURSE OFFERING CHANGES? IN ESTABLISHING PRIORITIES FOR THE PROGRAMS OR COURSES OFFERED?
2. WHAT IS THE EMPLOYMENT RATE FOR VARIOUS VOCATIONAL OR TECHNICAL PROGRAMS?

The available data is not adequate to provide answers to the foregoing questions. Some partial answers can be given by the data and other supportive information.

One question in the questionnaire asked, "Were you unemployed or did you experience any lay-offs during the period July 1, 1968 to July 1, 1970?" In response to this question, 38 (6.76%) of the total group of 562 subjects indicated in the affirmative, 164 (29.18%) indicated in the negative and 360 (64.06%) did not respond. It should be noted here that those who were transferring to senior institutions were instructed to ignore this portion of the questionnaire.

Another question in the questionnaire asked, "Is your present occupation or profession the one you trained for in college?" This question was asked only of those entering the field of work following graduation from junior college. The responses indicated that 18.51 percent considered their present occupation not the same as the one trained for in junior college.

As found elsewhere in this report, 56 or 9.96% of the total group were or had been in military service during 1968-70. Of this group, 49 or 84% were occupational majors.

A follow-up study of Spoon River College's agricultural occupations programs conducted by Huber, 1970, revealed that 56 percent of the 1967, '68, '69 and '70 graduates of the Farm Machinery Technology Program entered occupations specific to their preparation, 27 percent entered related occupations and 13 percent went into military service.

13 percent went into military service.[1] The same study showed that 50 percent of the 1969 and '70 graduates of the newly created Agricultural Management Technology Program were employed in occupations "directly related" to their preparations, 35 percent entered "closely related" occupations and 10 percent entered the military service. (Huber's EMPLOYMENT TABLE 4 is reproduced below).

TABLE 4
EMPLOYMENT STATUS

Farm Machine Technology Program

Grad. Class	Full Time Employment: In Occup. for which Prepared		In Related Occupation		In Unrelated Occupation		Employed Part-Time		Unemployed		Entered Arm. Forces After Grad		Full Time School	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1967	13	59	7	32	--	--	--	--	--	--	2	9	--	--
1968	22	73	2	7	1	3	--	--	--	--	4	14	1	3
1969	13	42	12	39	1,	3	--	--	--	--	3	10	2	6
1970	19	53	11	31	--	--	--	--	--	--	6	16	--	--
TOTALS	67	56%	32	27%	2	2%	--	--	--	--	15	13%	3	2%

Agricultural Management Technology Program

Grad. Class	Full Time Employment: In Occup. for which Prepared		In Related Occupation		In Unrelated Occupation		Employed Part-Time		Unemployed		Entered Arm. Forces After Grad.		Full Time School	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1969	3	30	4	40	1	10	--	--	--	--	2	20	--	--
1970	10	71	4	29	0	--	--	--	--	--	--	--	--	--
TOTALS	13	50%	8	35%	1	5%	--	--	--	--	2	10%	--	--

[1] Huber, Harold D., Report I: Agricultural Occupations, Spoon River College, 1970. pp 6-7.

Huber reported that the follow-up study provided a basis for evaluation of occupational programs, served as a basis for curricular additions, modification of instructional methods and acquisition of instructional materials.

1. IS THERE A SIGNIFICANT DIFFERENCE IN COLLEGE EXPENDITURE PER STUDENT IN OCCUPATIONAL AND TRANSFER PROGRAMS?
2. IS THERE A SIGNIFICANT DIFFERENCE BETWEEN OCCUPATIONAL AND TRANSFER STUDENTS CONCERNING DISTANCE FROM HOME TO COLLEGE?
3. IS THERE A SIGNIFICANT DIFFERENCE IN DISTANCE FROM COLLEGE TO JOB FOR THOSE OCCUPATIONAL AND TRANSFER STUDENTS WHO WORKED WHILE ATTENDING COLLEGE?

The following table presents cost comparisons, distance from home to college, and distance from college to job for those employed while in college. (These comparisons are between students in occupational and transfer oriented programs.)

TABLE 18

CHARACTERISTICS	OCCUPATIONAL N	OCCUPATIONAL Mean	OCCUPATIONAL Std.	TRANSFER N	TRANSFER Mean	TRANSFER Std.	T-Value
College expenditure per student per year	186	$1094.40	$469.95	376	$789.90	$174.54	11.09**
Distance from home to college	186	55.54	64.12	376	17.53	31.95	9.35**
Distance from college to job for those who worked while in college	110	10.53	14.08	217	8.68	14.05	1.24

** Significant at .05 level.

Union affiliation of wage earners:

20 are union members (10.64%)
13 are in positions requiring union membership (7%).

COMPARED TO OTHER STAFF, ARE VOCATIONAL OR TECHNICAL STAFF MEMBERS EQUALLY WELL TRAINED?

TABLE 19

Highest Degree Attained by Teaching Faculty [1]
in Occupational and Adult Education Curricula
Fall 1969

College	N	Doctorate N	Doctorate %	Master's + 30 N	Master's + 30 %	Master's Deg. N	Master's Deg. %	Bachelor's Deg. N	Bachelor's Deg. %	Less than Bachelor's N	Less than Bachelor's %
A	27	0	0	2	7	11	41	12	44	2	7
B	70	3	4	18	26	27	39	17	24	5	7
C	11	0	0	0	0	6	55	0	0	5	45
D	59	1	2	2	3	24	41	21	36	11	19
E	63	3	5	4	6	23	37	20	32	13	21

TABLE 20

Business and Industrial Experience of Teaching [1]
Faculty and -- Occupational Curricula - Fall 1969

College	N	11 or more years N	11 or more years %	9-10 years N	9-10 years %	7-8 years N	7-8 years %	5-6 years N	5-6 years %	3-4 years N	3-4 years %	0-2 years N	0-2 years %
A	27	12	44	2	7	1	4	4	15	3	11	5	19
B	70	9	13	3	4	4	6	12	17	10	14	32	46
C	11	3	28	2	18	1	9	1	9	1	9	3	28
D	59	31	52.5	3	5.1	6	10.2	8	13.6	6	10.2	5	8.4
E	63	33	52	6	10	6	10	4	6	5	8	9	14

[1] Martin, Albert H. and Carl E. Thornblad, Report of Selected Data and Characteristics of Illinois Public Junior Colleges 1969-70. Springfield: Illinois Junior College Board. 1970.

TABLE 21

Academic Preparation of Teaching Faculty -- Baccalaureate Curricula - Fall 1969[1]

College	N	Doctorate N	Doctorate %	Master's + 30 N	Master's + 30 %	Master's Deg. N	Master's Deg. %	Bachelor's Deg. N	Bachelor's Deg. %	Less than Bachelor's N	Less than Bachelor's %
A	29	1	4	2	7	15	52	11	38	0	0
B	136	4	3	62	46	67	49	3	2	0	0
C	25	2	8	2	8	19	76	2	8	0	0
D	96	3	3.1	14	14.6	65	68	14	14.6	0	0
E	192	13	7	59	31	103	53.6	16	8	1	.5

[1]Martin, Albert H. and Carl E. Thornblad, Report of Selected Data and Characteristics of Illinois Public Junior Colleges 1969-70. Springfield: Illinois Junior College Board. 1970.

TABLE 22

Summary Table of Academic Preparation of Teaching Faculty
Baccalaureate and Occupational and Adult Ed. Curricula
1969

College	Bacc N	Occ & Adult N	Doctorate				Master's + 30				Master's Degree			
			Bacc		Occ & Adult		Bacc		Occ & Adult		Bacc		Occ & Adult	
			N	%	N	%	N	%	N	%	N	%	N	%
A	29	27	1	4	0	0	2	7	2	7	15	52	11	41
B	136	70	4	3	3	4	62	46	18	26	67	49	27	39
C	25	11	2	8	0	0	2	8	0	0	19	76	6	55
D	96	59	3	3.1	1	2	14	14.6	2	3	65	68	24	41
E	192	63	13	7	3	5	59	31	4	6	103	53.6	23	37

College	Bachelor's Degree				Less than Bachelor's			
	Bacc		Occ & Adult		Bacc		Occ & Adult	
	N	%	N	%	N	%	N	%
A	11	38	12	44	0	0	2	7
B	3	2	17	24	0	0	5	7
C	2	8	0	0	0	0	5	45
D	14	14.6	21	36	0	0	11	19
E	16	8	20	32	1	.5	13	21

PREDICTION OR EXPLANATION MODEL

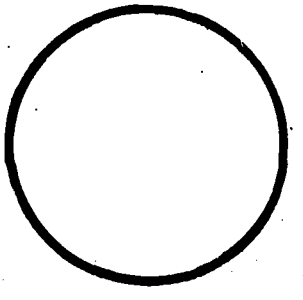
PREDICTION MODEL

The problem pursued in this phase of the study addressed itself to the identification, delienation and explanation of those variables which contribute to the wage earning capacity of junior college graduates. We might represent the wage earning potential of an individual as a circle, Figure 1, in which there are contained many unknown variables or contributors to wage earning capacity. The task is to reach into this little known area and attempt to capture quantifiable and dichotomous variables to provide a knowledge base from which wage earning prediction can evolve.

The model used: $E = f(IV) + f(FV) + f(CV) + f(JV)$

Where E = earnings
IV = individual variables
FV = family variables
CV = college variables
JV = job variables

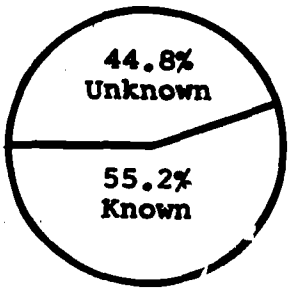
FIGURE 1



Wage Earning Potential

The model identified many variables which makes it possible for us to reconstruct our circle, Figure 2. Figure 2 reveals that we can now account for 55.2 percent of the variables influencing wage earning capacity. The figure also

FIGURE 2

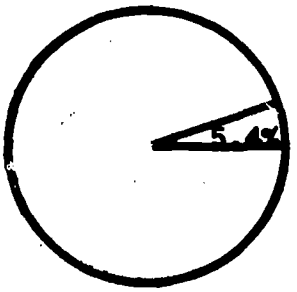


Known and Unknown Variables
Affecting Earnings

indicates, and rightly so, that 44.8 percent of the contributing variables are left unidentified by this model.

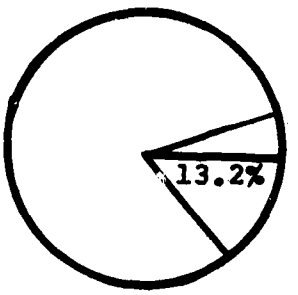
The model E = f(IV) + f(FV) + f(CV) + f(JV) explains 55.2 percent of the earning potential. When each set of variables is examined separately, it is found that they have the following prediction power:

FIGURE 3



Earning Explanation Given By Family Variables

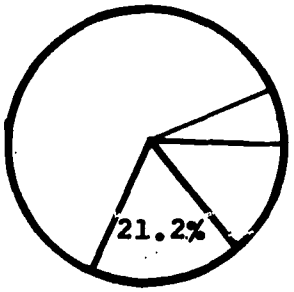
FIGURE 4



Increase in Earning Explanation Given By Job Variables

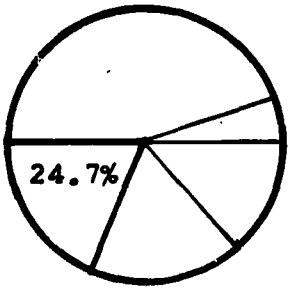
FV(family variables) predict 5.4 percent (Figure 3), JV (job variables) predict 13.2 percent (Figure 4),

FIGURE 5



Increase in Earning Explanation Given By College Variables

FIGURE 6



Increase in Earning Explanation Given by Individual Variables

CV (college variables) predict 21.6 percent (Figure 5), and IV (individual variables) predict 24.7 percent (Figure 6).

To determine the specific variables with greatest explanation power within the individual and college categories a series of submodels were developed. To build the submodels it was necessary to formulate a rationale. The rationale evolved from the assumption that there is a limited amount of resources available for occupational education and these resources must be allotted to areas where maximum returns, in form of earnings, will be produced.

Family variables were excluded from this stage of the analysis since they, by themselves, explain only 5.4 percent of earnings. Further, job variables were excluded since they are not ascertainable until the nunior college educational program has terminated.

APPENDIX A

With the foregoing considerations, the following variables were examined and found to be most significant within the IV (individual variables) category:

hours worked per week while in college -- explain 11.2 percent of the earnings, and

sex -- explains 11.1 percent of the earnings.

Within the CV (college variables) category, program, college expenditure per student and occupation when taken together account for 11.3 percent of the earnings. Separate they explain as follows: .03, 1.19 and 7.68 percent respectively.

The variable "hours worked per week while in college" is important in explaining earnings for male occupational graduates as seen in the following table.

TABLE 23

Comparison of Earnings of Male Occupational Graduates Who Worked and Did Not Work While Attending College

Year	Workers N	Workers Mean	Workers Std.	Non-Workers N	Non-Workers Mean	Non-Workers Std.	T-Values
1968	35	$6426.00	$1619.00	31	$5174.00	$1497.00	3.19*
1969	30	7373.00	1955.00	24	6225.00	2057.00	2.06**
1970	31	8003.00	1881.00	22	6550.00	1842.00	2.75*

* Significant at .05 and .01 levels.
** Significant at .05 and .01 levels.

The explanation power of "hours worked per week while in college" is weak for female occupational graduates as seen in the following table.

TABLE 24

Comparison of Earnings of Female Occupational Graduates Who Worked and Did Not Work While Attending College

Year	Workers N	Workers Mean	Workers Std.	Non-Workers N	Non-Workers Mean	Non-Workers Std.	T-Values
1968	33	$5161.00	$1836.00	4	$5150.00	$2047.00	.01*
1969	30	5657.00	1713.00	5	4900.00	2200.00	.87*
1970	33	6194.00	1923.00	5	5520.00	1952.00	.71*

* No significant difference.

Further, the explanation power of "hours worked per week while in college" is of no value for male and female transfer graduates.

TABLE 25

Comparison of Earnings of Male Transfer Graduates Who Worked and Did Not Work While Attending College

Year	Workers N	Workers Mean	Workers Std.	Non-Workers N	Non-Workers Mean	Non-Workers Std.	T-Values
1968	17	$6029.39	$2824.00	3	$4833.00	$1457.00	.68*
1969	21	7914.00	3083.00	3	5400.00	1836.00	1.32*
1970	27	7770.00	3186.00	6	7550.00	2582.00	.15*

* No significant difference.

TABLE 26

Comparison of Earnings of Female Transfer Graduates Who Worked and Did Not Work While Attending College

Year	Workers N	Workers Mean	Workers Std.	Non-Workers N	Non-Workers Mean	Non-Workers Std.	T-Values
1968	13	$4862.00	$2687.00	7	$3686.00	$1629.00	1.00*
1969	13	5046.00	2221.00	7	4271.00	1272.00	.81*
1970	15	5747.00	2192.00	11	5382.00	2057.00	.41*

* No significant difference.

APPENDIX B

MID-STATE EDUCATIONAL CONSULTANTS

Bloomington-Normal, Illinois
CHARLES R. HICKLIN, Director

P.O. BOX 344
NORMAL, ILLINOIS 61761
(309) 452-1812

50

As a graduate of an Illinois junior college, you have been selected to receive a questionnaire to determine your post-graduation experiences. This research is sponsored by the State of Illinois Advisory Council on Vocational Education with the cooperation of your alma mater and the Illinois Junior College Board.

This research project is a comparison between graduates going directly into the field of work from junior college transfer programs and those graduates of the two-year junior college occupational programs.

By the very nature of this study, some personal questions will be asked. May I assure you that your returns will be held in complete confidence. I will be the only person to see the return. When I receive your reply, the data will be placed on IBM cards. At this point the completed questionnaire will be destroyed. The results of this study will not be reported by individual or college. It will be reported as earnings received by Illinois junior college graduates.

If you transferred to a four-year college or university after graduating from junior college, complete only items 1 through sixteen (16).

For accuracy it is important that we receive a return from each of those included in the study. May we have your prompt cooperation in the interest of future education in Illinois? A pre-stamped and self-addressed envelope is enclosed for your convenience.

Thank you for your cooperation.

Sincerely yours,

George W. Forgey

George W. Forgey
Illinois State University

JUNIOR COLLEGE GRADUATE'S PERSONAL QUESTIONNAIRE

Sex: Male ___ Female ___ (check)

Junior College attended _____

3. Total student enrollment of high school from which you graduated: 250 or less ___, 251 to 500 ___, 501 to 1000 ___, 1001 or more ___ (✔ check)

4. Number of years of schooling completed by your father:

   6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 (circle answer)

5. Number of years of schooling completed by your mother:

   6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 (circle answer)

6. Marital status while in college: single ___ married ___ (✔ check)

7. Date you graduated from junior college: _____ (month) ____ (year)

8. Distance from your home to junior college: _____ miles.

9. Were you employed while attending college? Yes ___ No ___ (✔ check)

0. If (9) is YES, distance from college to job: _____ miles.

1. If (9) is YES, average number of hours worked per week during the school year (do not include vacation periods): _____ hours.

2. Did you have a scholarship during the:

   1966-67 school year? Yes ___ No ___. If YES, extent of assistance in dollars per semester: $ _____

   1967-68 school year? Yes ___ No ___. If YES, extent of assistance in dollars per semester: $ _____

3. Did you receive financial assistance (room, board, allowance, transportation) from home during the:

   1966-67 school year? Yes ___ No ___. If YES, extent of assistance in dollars per semester: $ _____

   1967-68 school year? Yes ___ No ___. If YES, extent of assistance in dollars per semester: $ _____

14. Was your major reason for taking junior college courses to prepare you to go to a four-year college? Yes ___ No ___.

15. If (14) is YES, did you transfer to a four-year college or university? Yes ___ No ___.

16. If (15) is YES, name of college or university _____.
    your major _____.

17. Was your major reason for taking junior college courses to prepare you to enter an occupation upon graduation from junior college? Yes ___ No ___.

18. If (17) is YES, name the occupation: _____.

19. Is your present occupation or profession the one you trained for in college? Yes ___ No ___.

20. If (19) is NO, what factors caused you to choose your present occupation or profession?

    _____

    _____.

21. Occupational experience since graduation:

Year	Job Title	Name of Firm	Address of Firm	Estimated Annual Wage
1968				
1969				
1970				

Note: Report wages earned from July 1 to June 30 of each year and the estimated annual wage for 1970 on the basis of present earnings.

22. Were you unemployed or did you experience any lay-offs during the period July 1, 1968 to July 1, 1970? Yes ___ No ___.

23. If (22) is YES, complete the following:

    unemployed from ___ (date) to ___ (date) laid-off from ___ (date) to ___ (date)

24. Are you a labor union member? Yes ___ No ___.

25. If (24) is YES, is union membership necessary for the job you currently hold? Yes ___ No ___.

26. What skills do you need for success in your present job that were not acquired in junior college?

    _____

    _____

27. If additional skills were needed for success in your present job, where did you acquire these skills? _____

28. Satisfaction with your present job. (check one)

    4 ___ Very Satisfied. 2 ___ Dissatisfied.
    3 ___ Satisfied. 1 ___ Very Dissatisfied.

THANK YOU FOR YOUR COOPERATION

Form _____

60

51